

# CHERRY CREEK TRAILER PARK (PWSNO 1050005) SOURCE WATER ASSESSMENT REPORT

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January 14, 2003



## State of Idaho Department of Environmental Quality

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## Executive Summary

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the act. This risk assessment is based on a land use inventory in the well recharge zone, sensitivity factors associated with how the well was constructed, and aquifer characteristics.

This report, *Source Water Assessment for the Cherry Creek Trailer Park*, describes the public drinking water well; the well recharge zone and potential contaminant sites located inside the recharge zone boundaries. This assessment, taken into account with local knowledge and concerns, should be used as a planning tool to develop and implement appropriate protection measures for this public water system. **The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system.**

Cherry Creek Trailer Park is located next to Highway 5 about 1.5 miles west of St Maries, Idaho. A single ground water well supplies drinking water for the park. The water system serves 21 mobile home spaces, a residence and office. A ground water susceptibility analysis DEQ conducted on December 18, 2002 ranked the well at moderate risk relative to all classes of regulated contaminants.

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses that require education and surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

The Cherry Creek Trailer Park was mostly in compliance with *Idaho Rules for Public Drinking Water Systems* when it was inspected in August 2001. Among other improvements the system needed to extend the well casing 12 inches above grade, replace the well pit cover and move a fuel tank at least 50 feet from the well. Repairs have been made to the well pit cover and the fuel tank formerly located about 30 feet west of the well is no longer there. Consistent water quality monitoring is another valuable protection tool the system needs to implement.

A voluntary measure Cherry Creek Trailer Park should consider is writing an emergency response plan. A written well maintenance and monitoring schedule might also be helpful for ensuring that important tasks are attended to in a timely manner.

Due to the time involved with the movement of ground water, source water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. For assistance in developing protection strategies, please contact your regional Department of Environmental Quality office or the Idaho Rural Water Association.

# SOURCE WATER ASSESSMENT FOR CHERRY CREEK TRAILER PARK

## Section 1. Introduction - Basis for Assessment

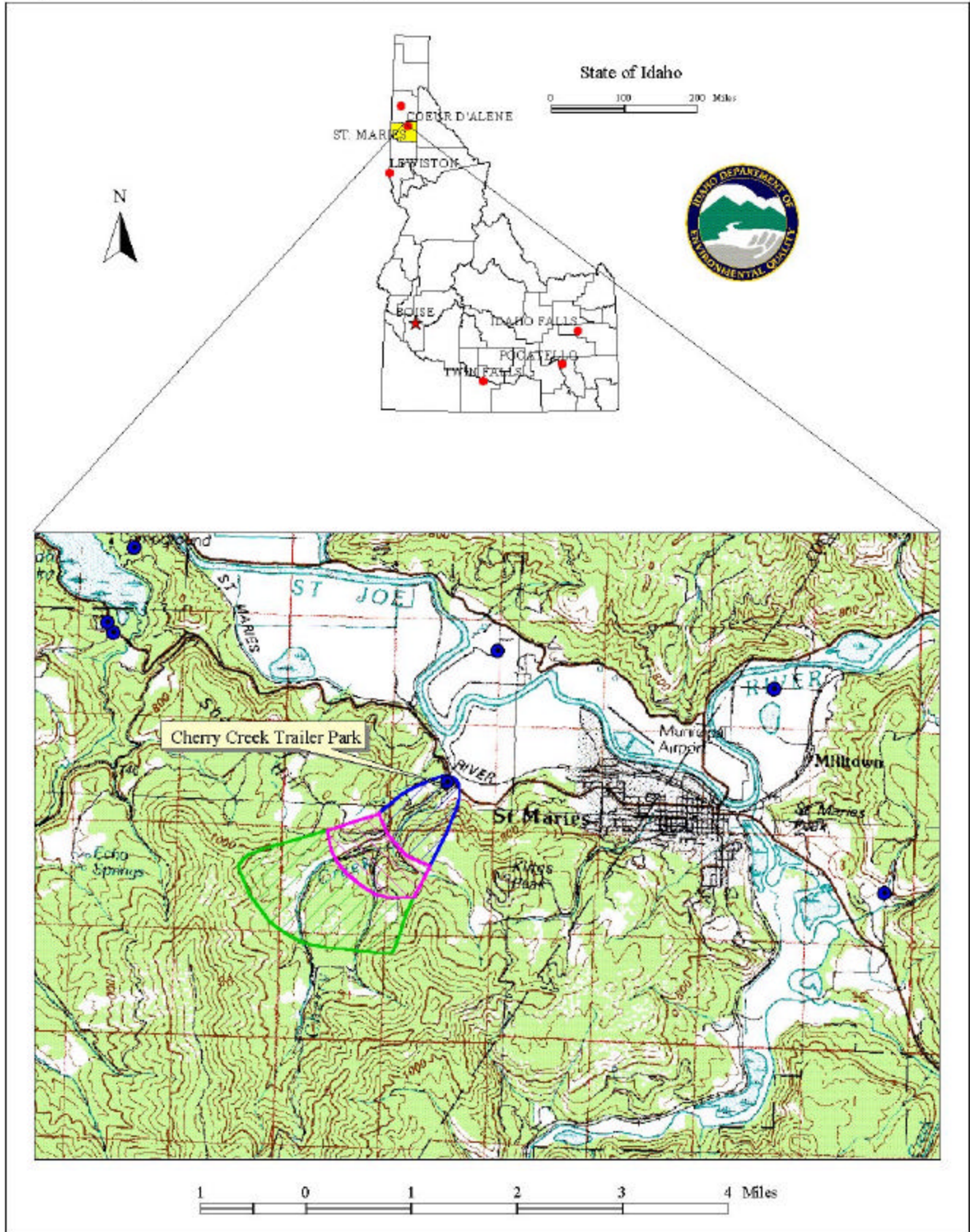
The following sections contain information necessary for understanding how and why this assessment was conducted. **It is important to review this information to understand what the ranking of this source means.** A map showing the delineated source water assessment area and an inventory of significant potential sources of contamination identified within that area are included. The ground water Susceptibility Analysis Worksheet used to develop this assessment is attached.

### Level of Accuracy and Purpose of the Assessment

The Idaho Department of Environmental Quality (DEQ) is required by the U.S. Environmental Protection Agency (EPA) to assess every public drinking water source in Idaho for its relative susceptibility to contaminants regulated by the Safe Drinking Water Act. These assessments are based on a land use inventory inside the delineated recharge zones, sensitivity factors associated with how the well is constructed, and aquifer characteristics. The state must complete more than 2900 assessments by May of 2003. Because resources and the time available to accomplish assessments are limited, an in-depth, site-specific investigation for every public water system is not possible.

**The results of the source water assessment should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system** The ultimate goal of this assessment is to provide data to local communities for developing a protection strategy for their drinking water supply. The Idaho Department of Environmental Quality recognizes that pollution prevention activities generally require less time and money to implement than treating a public water supply system once it has been contaminated. DEQ encourages communities to balance resource protection with economic growth and development. The decision as to the amount and types of information necessary to develop a source water protection program should be determined by the local community based on its own needs and limitations. Wellhead or source water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

Figure 1. Geographic Location of Cherry Creek Trailer Park



## Section 2. Preparing for the Assessment

### Defining the Zones of Contribution - Delineation

The delineation process establishes the physical area around a well that will become the focal point of the assessment. The process includes mapping the boundaries of the well recharge area into time of travel zones indicating the number of years necessary for a particle of water flowing through the aquifer to reach a well. DEQ used a refined computer model approved by the EPA to determine the extent of the recharge zone and to divide it into time of travel (TOT) zones. The computer model used data assimilated by DEQ from a variety of sources including local well logs.

Cherry Creek Trailer Park is located on Highway 5 about a mile and a half west of St Maries, Idaho. (Figure 1). A 115-foot deep well, capable of producing about 7 gallons per minute, supplies water to 21 mobile home spaces, a residence and an office.

The recharge zone delineated for the Cherry Creek Trailer Park well encompasses about 1250 acres divided into 0 to 3 and 3 to 6 year time of travel zones (Figure 2). The primary direction of ground water flow is from the southwest toward the well. The well is near the confluence of Cherry Creek and the St. Joe River and just above of the 100-year flood plain.

### Identifying Potential Sources of Contamination

The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of ground water contamination. Inventories for all public water systems in Idaho were conducted in two-phases. The first phase involved identifying and documenting potential contaminant sources within a system's source water assessment area through the use of computer databases and Geographic Information System maps developed by DEQ. Maps showing the delineations and tables summarizing the results of the database search were then sent to system operators for review and correction during the second or enhanced phase of the inventory process. Information from the public water system file was also incorporated into the potential contaminant inventory.

Figure 2, *Cherry Creek Trailer Park Delineation and Potential Contaminant Inventory* on page 7 of this report shows the location of the well, the zone of contribution DEQ delineated for it, and potential contaminant sites in the vicinity. Undeveloped forest is the predominant land inside the recharge zone.

Many potential sources of contamination are regulated at the federal level, state level, or both to reduce the risk of release. When a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation. What it does mean is that the potential for contamination exists due to the nature of the business, industry, or operation.

### Section 3. Susceptibility Analysis

The susceptibility to contamination of all ground water sources in Idaho is being assessed on the following factors:

- physical integrity of the well,
- hydrologic characteristics,
- land use characteristics, and potentially significant contaminant sources
- historic water quality

The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. A high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking that is derived for each well is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. The following summaries describe the rationale for the susceptibility ranking. The Susceptibility Analysis Worksheet for the Cherry Creek Trailer Park well, Attachment A, shows in detail how the well was scored.

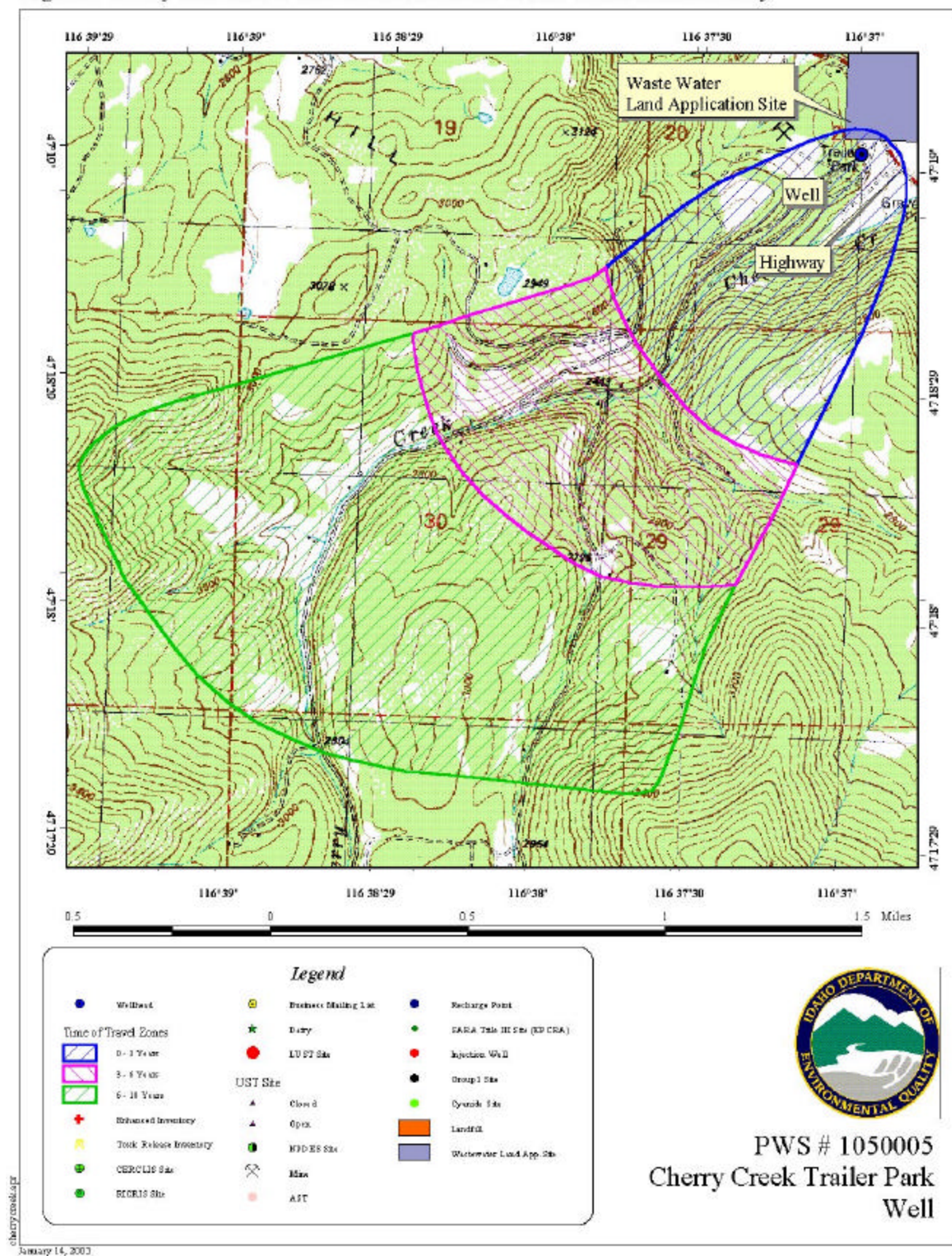
#### Well Construction

Well construction directly affects the ability of the wells to protect the aquifer from contaminants. Lower scores imply a well that can better protect the water. This portion of the susceptibility analysis relies on information from individual well logs and from the most recent sanitary survey of the public water system. The driller's report for the Cherry Creek Trailer Park well was found in a search of Idaho Department of Water Resources records. The water system was in substantial compliance with *Idaho Rules for Public Drinking Water Systems* when it was inspected in August 2001. The well casing needed to be raised above grade and vented.

The Cherry Creek Trailer Park well was drilled in 1974 to a depth of 115 feet. The 6-inch steel well casing extends from 8 inches above the floor of a concrete lined pit to the full depth of the well. Current Idaho Department of Water Resources standards do not allow construction of a well in a pit. The casing and 20-foot deep surface seal extend through a confining layer of clay at the surface. The casing terminates in a water bearing sand and gravel formation that begins 105 feet below ground. The surface seal terminates in a mixed layer of clay and boulders between 6 and 105 feet. Static water level is 65 feet below land surface.



Figure 2. Cherry Creek Trailer Park Delineation and Potential Contaminant Inventory.



## Hydrologic Sensitivity

Hydrologic sensitivity scores reflect natural geologic conditions at the well site and in the recharge zone. Information for this part of the analysis is derived from individual well logs and from the soil drainage classification inside the delineation boundaries. The Cherry Creek Trailer Park wells scored 3 points out of 6 points possible in the hydrologic sensitivity portion of the susceptibility analysis.

Soils in the recharge zone are predominately poorly to moderately well drained. Soils in these drainage classes are deemed more protective of ground water than quickly draining soils. At the well site 6 feet of clay, then 99 feet of clay mixed with boulders lie above the water table. Because spaces between the coarser material can provide a conduit into the ground water, the mixed clay and boulders are not counted as an aquitard capable of preventing vertical transport of contaminants. .

## Potential Contaminant Sources and Land Use

Figure 2, *Cherry Creek Trailer Park Delineation and Potential Contaminant Inventory* on page 7 shows the location of the Cherry Creek Trailer Park well, and the recharge zone DEQ delineated for it. The trailer park occupies part of the 0 to 3-year time of travel nearest the well. Highway 5 and a small portion of the St. Maries municipal wastewater land application site are found inside the 0-3 year time of travel zone. A fuel storage tank 30 feet west of the well that was mentioned in the last survey is no longer on the site. No potential contaminant sources are documented elsewhere in the well recharge zone. Most of the land is undeveloped forest.

## Historic Water Quality

The Cherry Creek Trailer Park has had few water quality problems other than sporadic episodes of total coliform contamination that appear to be confined to the distribution system. Water quality test results are summarized on the table below.

**Table 1. Cherry Creek Trailer Park Chemical Sampling Results**

Primary IOC Contaminants (Mandatory Tests)							
Contaminant	MCL (mg/l)	Results (mg/l)	Dates	Contaminant	MCL (mg/l)	Results (mg/l)	Dates
Antimony	0.006	*ND	3/6/95, 4/27/00o	Nitrate	10	2.71 to 3.91	3/6/95 through 4/27/00
Arsenic	0.01	ND	3/6/95, 4/27/00	Nickel	N/A	ND	3/6/95, 4/27/00
Barium	2	ND	3/6/95, 4/27/00	Selenium	0.05	ND	3/6/95, 4/27/00
Beryllium	0.004	ND	3/6/95, 4/27/00	Sodium	N/A	5.8, 5.91	3/6/95, 4/27/00
Cadmium	0.005	ND	3/6/95, 4/27/00	Thallium	0.002	ND	4/27/00
Chromium	0.1	ND	3/6/95, 4/27/00	Cyanide	0.02	ND	3/6/95
Mercury	0.002	ND	3/6/95, 4/27/00	Fluoride	4.0	ND	4/27/00



**Table 1. Cherry Creek Trailer Park Chemical Sampling Results continued**

Secondary and Other IOC Contaminants (Optional Tests)			
Contaminant	Recommended Maximum (mg/l)	Results (mg/l)	Dates
Sulfate		4.7	4/27/00
Regulated and Unregulated Synthetic Organic Chemicals			
Contaminant		Results	Dates
29 Regulated and 13 Unregulated Synthetic Organic Compounds		None Detected	4/24/95
Regulated and Unregulated Volatile Organic Chemicals			
Contaminant		Results	Dates
21 Regulated And 16 Unregulated Volatile Organic Compounds		None Detected	9/7/93, 4/27/00
Radiological Contaminants			
Contaminant	MCL	Results	Dates
Gross Alpha, Including Ra & U	15 pC/l	0.2 to 0.4 pC/l	3/7/95 to 4/27/00
Gross Beta Particle Activity	4 mrem/year	0.2 to 2.5 mrem	3/7/95 to 4/27/00

\*ND = not detected

### Final Susceptibility Ranking

The Cherry Creek Trailer Park well ranked moderately susceptible to all classes of regulated contaminants. Correctable maintenance and construction problems that increase the well's vulnerability to storm water flooding added 2 points to the final susceptibility scores.

The final scores for the susceptibility analysis were determined using the following formulas:

- 1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.2)
- 2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.35)

The final ranking categories are as follows:

- 0 - 5 Low Susceptibility
- 6 - 12 Moderate Susceptibility
- > 13 High Susceptibility

**Table 2. Summary of Cherry Creek Trailer Park Susceptibility Evaluation**

<b>Cumulative Susceptibility Scores</b>						
Well Name	System Construction	Hydrologic Sensitivity	Contaminant Inventory			
			IOC	VOC	SOC	Microbial
Well #1	4	3	3	3	3	2
<b>Final Susceptibility Scores/Ranking</b>						
	IOC	VOC	SOC	Microbial		
Well #1	7/Moderate	7/Moderate	7/Moderate	7/Moderate		

IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

## Section 4. Options for Source Water Protection

The susceptibility assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what the susceptibility ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses that require education and surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

Maintaining and operating the well in full compliance with the *Idaho Rules for Public Drinking Water Systems* is the most important drinking water protection tool available to Cherry Creek Trailer Park. As mentioned in the 2001 sanitary survey report, the well casing needs to be raised above grade and fitted with a vented sanitary well seal. Recommended repairs to the well pit cover have been completed, and a fuel tank west of the well has been moved. The system needs to adhere to the required testing schedule. Consistent monitoring provides baseline information that can indicate developing problems before they reach the crisis stage.

A voluntary measure every system should implement is development of a water emergency response plan. There is a simple fill-in-the-blanks form available on the DEQ website to guide systems through the process.

Drinking water protection partnerships with other landowners in the recharge zone, and governmental agencies like the municipal wastewater board may also be useful. The board may not be aware that its land application site impinges on the recharge zone for a public drinking water supply.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term.

### Assistance

Public water suppliers and users may call the following IDEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the IDEQ office for preliminary review and comments.

Coeur d'Alene Regional DEQ Office     (208) 769-1422

State IDEQ Office                             (208) 373-0502

Website: [www.deq.state.id.us/water/water1.htm](http://www.deq.state.id.us/water/water1.htm)

Water suppliers serving fewer than 10,000 persons may contact Melinda Harper of the Idaho Rural Water Association (208) 343-7001 for assistance with drinking water protection strategies.

## References Cited

Great Lakes-Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers, 1997. "Recommended Standards for Water Works."

Idaho Department of Agriculture, 1998. Unpublished Data.

Idaho Department of Environmental Quality, 1997. Design Standards for Public Drinking Water Systems. IDAPA 58.01.08.550.01.

Idaho Department of Water Resources, 1993. Administrative Rules of the Idaho Water Resource Board: Well Construction Standards Rules. IDAPA 37.03.09.

Idaho Department of Environmental Quality, 2002. Coeur d'Alene Regional Office Technical Services Delineations Draft Report.

## Attachment A

# Cherry Creek Trailer Park Susceptibility Analysis Worksheet



**Ground Water Susceptibility**Public Water System Name : **CHERRY CREEK TRAILER PARK**Source: **WELL #1**Public Water System Number : **1050005**

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<b>1. System Construction</b>		<b>SCORE</b>			
Drill Date	6/26/74				
Driller Log Available	NO				
Sanitary Survey (if yes, indicate date of last survey)	YES 2001				
Well meets IDWR construction standards	NO. WELL IN PIT	1			
Wellhead and surface seal maintained	YES	0			
Casing and annular seal extend to or through low permeability unit	YES	0			
Highest production 100 feet below static water level	NO	1			
Well protected from surface runoff	NO	1			
<b>Total System Construction Score</b>		<b>3</b>			
<b>2. Hydrologic Sensitivity</b>					
Soils are poorly to moderately drained	YES	0			
Vadose zone composed of gravel, fractured rock or unknown	NO	0			
Depth to first water > 300 feet	NO	1			
Aquitard present with > 50 feet cumulative thickness	NO	2			
<b>Total Hydrologic Score</b>		<b>3</b>			
		IOC	VOC	SOC	Microbial
<b>3. Potential Contaminant / Land Use</b>		Score	Score	Score	Score
Land Use	UNDEVELOPED FOREST	0	0	0	0
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Sanitary Setback	NO	NO	NO	NO	NO
<b>Potential Contaminant Source/Land Use Score</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Potential Contaminant / Land Use - ( 3 YR. TOT)</b>					
Contaminant sources present (Number of Sources)	YES. Waste Water Land Application Site, Highway 5	1	1	1	1
(Score = # Sources X 2 ) 8 Points Maximum		2	2	2	2
Sources of Class II or III leacheable contaminants or Microbials	YES	1	1	1	
4 Points Maximum		1	0	0	
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use 3 YR. TOT	Less Than 25% Agricultural Land	0	0	0	0
<b>Total Potential Contaminant Source / Land Use Score 3 year tot</b>		<b>3</b>	<b>3</b>	<b>3</b>	<b>2</b>
<b>Potential Contaminant / Land Use - 6 YR. TOT</b>					
Contaminant Sources Present	NO	0	0	0	
Sources of Class II or III leacheable contaminants or Microbials	NO	0	0	0	
Land Use 6 YR. TOT	Less than 25% Agricultural Land	0	0	0	
<b>Potential Contaminant Source / Land Use Score 6 YR TOT</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Potential Contaminant / Land Use - 10 YR. TOT</b>					
Contaminant Source Present	NO	0	0	0	
Sources of Class II or III leacheable contaminants or Microbials	NO	0	0	0	
Is there irrigated agricultural lands that occupy > 50% of Zone	NO	0	0	0	
<b>Total Potential Contaminant Source / Land Use Score - 10 YR TOT</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Cumulative Potential Contaminant / Land Use Score</b>		<b>3</b>	<b>3</b>	<b>3</b>	<b>2</b>
<b>4. Final Susceptibility Source Score</b>		<b>7</b>	<b>7</b>	<b>7</b>	<b>7</b>
<b>5. Final Well Ranking</b>		Moderate	Moderate	Moderate	Moderate

# POTENTIAL CONTAMINANT INVENTORY

## LIST OF ACRONYMS AND DEFINITIONS

**AST (Aboveground Storage Tanks)** – Sites with aboveground storage tanks.

**Business Mailing List** – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

**CERCLIS** – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as Superfund, is designed to clean up hazardous waste sites that are on the national priority list (NPL).

**Cyanide Site** – DEQ permitted and known historical sites/facilities using cyanide.

**Dairy** – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

**Deep Injection Well** – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

**Enhanced Inventory** – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

**Floodplain** – This is a coverage of the 100-year floodplains.

**Group 1 Sites** – These are sites that show elevated levels of contaminants and are not within the priority one areas.

**Inorganic Priority Area** – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

**Landfill** – Areas of open and closed municipal and non-municipal landfills.

**LUST (Leaking Underground Storage Tank)** – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

**Mines and Quarries** – Mines and quarries permitted through the Idaho Department of Lands.)

**Nitrate Priority Area** – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

**NPDES (National Pollutant Discharge Elimination System)** – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

**Organic Priority Areas** – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

**Recharge Point** – This includes active, proposed, and possible recharge sites on the Snake River Plain.

**RICRIS** – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

**SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities)** – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

**Toxic Release Inventory (TRI)** – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

**UST (Underground Storage Tank)** – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

**Wastewater Land Applications Sites** – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

**Wellheads** – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

**NOTE:** Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.